

CLAIMS

What is claimed is:

1. A system comprising:
 - a first electrode;
 - a second electrode;
 - a voltage generator electrically coupled to the first electrode and the second electrode in order, when energized, to create a flow of air in a downstream direction from the first electrode to the second electrode; and
 - an environmental sensor, wherein the output of the voltage generator is adjusted based on a signal from the sensor.
2. The system of claim 1, wherein the environmental sensor is a particulate detector.
3. The system of claim 2, wherein the particulate detector is a photoelectric unit
4. The system of claim 1, wherein the environmental sensor detects the presence of humans or animals.
5. The system of claim 1, wherein the environmental sensor is a passive IR detector.
6. The system of claim 1, wherein the environmental sensor is an ozone sensor.
7. The system of claim 1, wherein the first and second electrodes and the voltage generator are on a base unit and the environmental sensor is on a remote unit.
8. The system of claim 7, wherein the remote unit communicates with the base unit wirelessly.
9. The system of claim 1, wherein the first and second electrodes, the voltage generator, and the environmental sensor are on a single unit.
10. The system of claim 1, further comprising a control unit adapted to adjust the voltage

generator based on the signal from the sensor.

11. The system of claim 10, wherein the control unit adjusts a peak voltage of the voltage generator output.

12. The system of claim 10, wherein the control unit adjusts a duty cycle of the voltage generator output.

13. The system of claim 1, wherein said first electrode is an ion emitter and the second electrode is a collector of particulate.

14. The system of claim 1, wherein said first electrode is positively charged and the second electrode is negatively charged.

15. A system comprising:

a first electrode;

a second electrode;

a voltage generator electrically coupled to the first electrode and the second electrode in order, when energized, to create a flow of air in a downstream direction from the first electrode to the second electrode; and

a control unit to automatically control an output of the voltage generator based on an environmental condition.

16. The system of claim 15, wherein the environmental condition is a detected level of particulate.

17. The system of claim 15, wherein the environmental condition is a detected level of ozone.

18. The system of claim 15, wherein the environmental condition is the detected presence of a human or animal.

19. The system of claim 15, further comprising a environmental sensor adapted to detect the environmental condition.
20. The system of claim 19, wherein the environmental sensor is a particulate detector.
21. The system of claim 20, wherein the particulate detector is a photoelectric unit
22. The system of claim 19, wherein the environmental sensor is a passive IR detector.
23. The system of claim 19, wherein the environmental sensor is an ozone sensor.
24. The system of claim 19, wherein the first and second electrodes, voltage generator, and control unit are on a base unit and the environmental sensor is on a remote unit.
26. The system of claim 24, wherein the remote unit communicates with the base unit wirelessly.
27. The system of claim 15, wherein the first and second electrodes, the voltage generator, and the environmental sensor are on a single unit.
28. The system of claim 15, wherein the control unit adjusts a peak voltage of the voltage generator output.
29. The system of claim 15, wherein the control unit adjusts a duty cycle of the voltage generator output.
30. The system of claim 15, wherein said first electrode is an ion emitter and the second electrode is a collector of particulate.
31. The system of claim 15, wherein said first electrode is positively charged and the second electrode is negatively charged.

32. A system comprising:
- a first electrode;
 - a second electrode;
 - a voltage generator electrically coupled to the first electrode and the second electrode in order, when energized, to remove some particulate from air; and
 - a particulate detector, wherein the output of the voltage generator is adjusted based on a signal from the particulate detector.
33. The system of claim 32, the particulate detector is a photoelectric unit.
34. The system of claim 32, wherein the first and second electrodes and the voltage generator are on a base unit and the particulate detector is on a remote unit.
35. The system of claim 34, wherein the remote unit communicates with the base unit wirelessly.
36. The system of claim 32, wherein the first and second electrodes, the voltage generator, and the environmental sensor are on a single unit.
37. The system of claim 32, further comprising a control unit adapted to adjust the voltage generator based on the signal from the particle detector.
38. The system of claim 37, wherein the control unit adjusts a peak voltage of the voltage generator output.
39. The system of claim 37, wherein the control unit adjusts a duty cycle of the voltage generator output.
40. The system of claim 32, wherein said first electrode is an ion emitter and the second electrode is a collector of particulate.

41. The system of claim 32, wherein said first electrode is positively charged and the second electrode is negatively charged.
42. The system of claim 32, wherein the voltage generator creates a flow of air in a downstream direction from the first electrode to the second electrode.
43. A method comprising the steps of:
generating an electrical potential between a first electrode and a second electrode in order to create a flow of air in a downstream direction from the first electrode to the second electrode;
and
adjusting the electrical potential based on a signal from an environmental sensor.
44. The method of claim 43, wherein a peak voltage of the electrical potential is adjusted.
45. The method of claim 43, wherein a duty cycle of the electrical potential is adjusted.
46. The method of claim 43, wherein the environmental sensor is a particulate detector.
47. The method of claim 43, wherein the environmental sensor is a passive IR detector.
48. The method of claim 43, wherein the environmental sensor is an ozone sensor.
49. The method of claim 43, wherein the first and second electrodes are on a base unit and the environmental sensor is on a remote unit.
50. The method of claim 49, wherein the remote unit communicates with the base unit wirelessly.
51. The method of claim 43, wherein the first and second electrodes and the environmental sensor are on a single unit.
52. The method of claim 43, wherein electrical potential is produced by a voltage generator.

53. The method of claim 52, wherein a control unit adjusts output of the voltage generator based on the signal from the sensor.

54. The method of claim 43, wherein the first electrode is an ion emitter and the second electrode is a collector of particulate.

55. The method of claim 43, wherein said first electrode is positively charged and the second electrode is negatively charged.